

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEPHEN FULD

Appeal No. 2005-2511
Application No. 09/479,146¹

ON BRIEF

Before, BARRY, SAADAT and MACDONALD, Administrative Patent Judges.
SAADAT, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the Examiner's final rejection of claims 12-14 and 16-18, which are all of the claims remained pending in this application.

We reverse.

BACKGROUND

Appellant's invention is directed to a method and system for data storage wherein the parity of data blocks are accumulated as the blocks are read from respective storage medium so that a bad

¹ Application for patent filed January 7, 2000.

data may be reconstructed based on the parity information without need for rereading the blocks prior to the bad data block. An understanding of the invention can be derived from a reading of exemplary independent claim 12, which is reproduced as follows:

1. In a magnetic tape having data blocks and a parity block in which the data blocks and the parity block are serially arranged on a track of the magnetic tape with the parity block following the data blocks and the parity block being based on the data blocks, a method for providing the data blocks from the track of the magnetic tape to a host, the method comprising:

reading the data blocks sequentially from the track of the magnetic tape;

determining if the data block currently being read is good or bad based on the reading of the data block currently being read;

providing the data block currently being read to the host if the currently being read data block does not follow a bad data block;

if one of the data blocks is bad, storing the good data blocks following the bad data block in sequential order

accumulating parity of the good data blocks as the data blocks are being read;

reading the parity block from the track of the magnetic tape after all of the data blocks have been read;

if one of the data blocks is bad, reconstructing the bad data block from the accumulated parity of the data blocks and the parity block in order to form a reconstructed good data block;

providing the reconstructed good data block to the host; and

providing the stored good data blocks to the host in sequential order after the reconstructed good data block has been provided to the host.

Appeal No. 2005-2511
Application No. 09/479,146

The Examiner relies on the following prior art references:

Stolowitz	6,018,778	Jan. 25, 2000
		(filed May 3, 1996)

Ron White (White), "How Computers Work," Millennium Edition, Que Corporation, 1999, pp. 176-177.

Claims 12-14 and 16-18 stand rejected under 35 U.S.C.
§ 103(a) as being unpatentable over Stolowitz and White.

Rather than reiterate the opposing arguments, reference is made to the briefs and answers for the respective positions of Appellant and the Examiner. Only those arguments actually made by Appellant have been considered in this decision. Arguments which Appellant could have made but chose not to make in the briefs have not been considered (37 CFR § 41.37(c)(1)(vii)).

OPINION

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). To reach a conclusion of obviousness under § 103, the examiner must produce a factual basis supported by teaching in a prior art reference or shown to be common knowledge of unquestionable demonstration. Such evidence is required in order to establish a prima facie case. In re Piasecki, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88

Appeal No. 2005-2511
Application No. 09/479,146

(Fed. Cir. 1984). The Examiner must not only identify the elements in the prior art, but also show "some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead the individual to combine the relevant teachings of the references." In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). However, "the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion." In re Lee, 277 F.3d 1338, 1344, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002).

The Examiner relies on Stolowitz for teaching a disk drive array that uses a multiplexer to convert the state of inputted data from parallel to serial and further on White for disclosing the format of a tape that has tracks containing both data and parity (supplemental answer, page 4). The Examiner further points to the use of a serial stream when reading from the disk drive in Stolowitz (col. 8, lines 32-33) and concludes that one of ordinary skill in the art would have used the magnetic tape of White in the redundant storage system of Stolowitz (suppl. answer, pages 4-5).

Appellant argues that White teaches (page 177, point 2 and page 176, point 5) the use of error correction code (ECC) in some of the blocks of a segment in a track and the use of cyclic redundancy codes (CRC) for each block (brief, page 8). Appellant further points out that there is nothing in White to indicate that data blocks and a parity block are serially arranged on a tape, as claimed, and instead, the reference discloses blocks serially arranged on a tape with some blocks being data blocks and some being data and ECC blocks (brief, page 8; reply brief, page 2). Additionally, Appellant relies on the "Restoring Files" section of White (page 177, last 4 lines) to further argue that "the EC codes appended to each data block" form "data and ECC blocks" as opposed to the claimed "data blocks" and "a parity block" (reply brief, page 3).

In response, the Examiner points to the Figures at the bottom of page 176 and top of page 177 of the reference and asserts that White actually shows EC blocks grouped together instead of forming blocks with both data and EC codes as well as data bits followed by EC bits (answer, page 3; suppl. Answer, page 10). The Examiner further asserts that the fact that White (page 177, point 2) describes a buffer used to prepare data wherein the software computes the EC codes and appends them to

the end of the data, means that the EC follows data blocks (suppl. answer, page 10).

We disagree with the Examiner that because some of the blocks contain EC codes, White teaches data blocks and a parity block that are serially arranged on a tape. As pointed out by Appellant, all White discloses is that some of the blocks contain EC codes wherein all the blocks have a CRC for further error correction appended to each block. White also discloses that as data is transferred to the tape and the files are copied to the PC's RAM buffer, the PC software running the copying computes the EC codes and appends them to the end of the data in the buffer if not processed by the tape driver's controller (page 177, point 2). Appellant's assertion regarding data blocks containing EC codes is further evidenced by White's portraying the data transfer to the controller from the buffer after the EC codes are appended to the end of data and the fact that the RAM buffer "is free to receive the next block of data (page 177, last two lines of point 2).

We also find ourselves convinced by Appellant's argument that the "Restoring Files" section of White further teaches that EC codes are appended to each data block which are used when there is a discrepancy in restoring process. What a reference

Appeal No. 2005-2511
Application No. 09/479,146

teaches is a question of fact. In re Baird, 16 F.3d 380, 382, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994) (citing In re Beattie, 974 F.2d 1309, 1311, 24 USPQ2d 1040, 1041 (Fed. Cir. 1992)). Here, the Examiner characterizes the blocks that contain EC codes as the parity blocks and every block that has a CRC appended to it as data block. As discussed above and argued by Appellant (reply brief, Page 3), White's disclosure with respect to including EC codes in eight of the blocks and appending a CRC to each block actually shows the presence of "data and ECC blocks" which is different from the claimed "data blocks" and "a parity block." Therefore, based on the analysis above and the Examiner's failure to set forth a prima facie case of obviousness, the 35 U.S.C. § 103 rejection of claims 12-14 and 16-18 over Stolowitz and White cannot be sustained.

Appeal No. 2005-2511
Application No. 09/479,146

CONCLUSION

In view of the foregoing, the decision of the Examiner rejecting claims 12-14 and 16-18 under 35 U.S.C. § 103 is reversed.

REVERSED

~~LANCE LEONARD BARRY~~
~~Administrative Patent Judge~~

MAHSHID D. SAADAT
Administrative Patent Judge

ALLEN R. MACDONALD
Administrative Patent Judge

BOARD OF PATENT
APPEALS
AND
INTERFERENCES

MDS/ki

Appeal No. 2005-2511
Application No. 09/479,146

Timothy R. Schulte
Storage Technology Corporation
One Storagetek Drive, MS 4309
Louisville, CO 80028-4309